
 PSYCHE.

CAMBRIDGE, MASS., NOV.-DEC. 1882.

Communications, exchanges and editors' copies should be addressed to EDITORS OF PSYCHE, Cambridge, Mass. Communications for publication in PSYCHE must be properly authenticated, and no anonymous articles will be published.

Editors and contributors are only responsible for the statements made in their own communications.

Works on subjects not related to entomology will not be reviewed in PSYCHE.

For rates of subscription and of advertising, see advertising columns.

EDITORIAL NOTICE.

In closing the third volume of PSYCHE with this double numero and the indexes which accompany it, the editors certainly owe an apology to the subscribers who have waited over two years for the completion of the volume. The making of the Systematic index could not be carried to any considerable extent before the index to volume two was published, as the decimal classification of subjects in that volume was to be used as a basis for the classification in the present index. Causes similar to those which delayed the issue of the index to volume two also prevailed to some extent in the present case, but it is expected that the index to volume four will be prepared soon after the completion of the volume.

As was foreseen when volume three was begun, the form of recording then adopted for PSYCHE has enabled the editors to furnish record of more articles in this volume than were recorded in volumes one and two combined, viz., 1854 paragraphs, whereas volume one contained 715 and volume two 731 paragraphs. As in the earlier volumes, the index pages, though very elaborate and costly, are nearly all given in excess of the

regular number of pages due to subscribers. The indexes are furnished only to subscribers to the whole volume, or for an extra charge of one dollar to subscribers for less than a volume.

After the issue of this numero the price of volume three of PSYCHE, either in ordinary form or printed on one side of the sheet, will be five dollars, the same price as is charged for volume four, or two copies, one in each form, for six dollars; and after the small supply of broken sets of the volume is exhausted, only the complete volumes will be obtainable from the publisher.

G: D.

 PROCEEDINGS OF SOCIETIES.

CAMBRIDGE ENTOMOLOGICAL CLUB.

(Continued from p. 402.)

12 MAY 1882—85th meeting. Col. T. W. Higginson, of Cambridge, Mass., and Mr. Leland O. Howard, of Washington, D. C. were elected active members of the Club.

Dr. H. A. Hagen exhibited slides of the female genitalia in *Clothilla* (a psocid), and *Prodoxus decipiens* (a tineid), showing the peculiar organs on the *vesicula seminalis*, whose probable function is to open the spermatophores. Dr. Hagen showed plates illustrating these organs. In *Clothilla* this organ is a horny plate with teeth to open spermatophores and holes at the base of the teeth to let in spermatozoa. He mentioned the fact that, in *Prodoxus*, the whole length of the *vesicula seminalis* was nearly one-half that of the insect and nearly filled the abdomen.

Dr. H. A. Hagen mentioned the familiar red-spotted appearance of the testes and spermatophores in *Danius archippus*.

Mr. S. H. Scudder stated that he had received, that day, from Mr. J. S. Kingsley, of Worcester, Mass., living specimens of a species of *Scolopendrella* differing from that mentioned by the speaker at the last meeting

of the entomological section of the Boston society of natural history, and which Mr. Kingsley called *S. ryderi*. It seemed to be closely allied to, if not the same as, Packard's *S. americana*.

Dr. H. A. Hagen called attention to the similarity between the fossil, considered thysanuran by Mr. Scudder, mentioned at the last meeting, and the early stages of *Hydrachna*.

Dr. H. A. Hagen mentioned the longevity of the larvae of *Prodoxus*, he having larvae now which have been living since 1879.

Voted that when we adjourn it should be until the regular date of meeting in October.

13 Oct. 1882.—86th meeting. Mr. S: H. Scudder called attention to the three plates of Buckton's "Monograph of the British aphides" on which are figures of fossil species, including those from amber.

Dr. H. A. Hagen recommended that the author's attention be called to the collection of insects from amber, possessed by Künow, of Königsberg, Germany.

Dr. H. A. Hagen called attention to the tracks made by the larvae of *gom-*
phidae. These tracks consist of two series of foot-prints due to the dif-
ferent distances of the feet from the median line. Dr. Hagen thought
that he had seen similar marks on rocks. [See *Nature*, 21 Dec. 1882, v. 27, p. 173, for further details.]

Mr. G: Dimmock showed eggs, cocoons and imagos of *Eugonia alniaria*, and made remarks on the earlier stages of this species.

Mrs. A. K. Dimmock exhibited leaves of the syringa, *Philadelphus coronarius*, which had been mined by the larva of a dipteran, of which pupae and imagos were shown. The mines were characterized by a peculiar arrangement of the excrement of the larvae in little curves, and were very abundant about Cambridge.

Dr. H. A. Hagen spoke of mines caused by dipterous larvae in the leaves of nasturtium (*Tropaeolum*), and Mr. Dimmock of

mines of dipterous larvae in leaves of dock (*Rumex*), about Cambridge.

Mr. G: Dimmock said that the odor so noticeable when larvae of *Attacus cecropia* were handled came from glands situated in each of the tubercles of the larvae. [For further details see *PSYCHE*, v. 3, p. 387.]

Mr. S: H. Scudder called attention to the poison of the larvae of a species of *Lagoa*. When allowed to crawl upon the arm, or upon any tender part of the skin, this larva leaves behind it a pathway which soon becomes red and often quite severely painful.

Mr. R. Hayward described some experiments which he had made to test the stinging power of *Hyperchiria to*.

Dr. H. A. Hagen, after giving the reasons why a late entomological excursion by Mr. S: Henshaw and himself was made to Washington Territory, remarked upon the synonymy of some species of *Papilio* found on the excursion. At Yumatilla, Oreg., and across the river from there, in Washington Territory, a species of *Papilio*, supposed to be *P. machaon*, was taken in company with *P. zolicaon*. Later it was found that *P. zolicaon* and *P. oregonus* were the same species. *P. oregonus* is very closely like *P. aliaska*. All of these are only climatic or regional variations of *P. machaon*, which extends around the northern hemisphere as a series of remarkable varieties. *P. rutulus* and *P. turnus* when compared show that the former is a western and the latter an eastern form; the differences are slight and not constant in each species. *P. rutulus* has, however, no dark-colored female. *P. rutulus* is found as far east as between Salt Lake, Utah, and Fort Bridger, Wyom. *P. daunus* and *P. rutulus* are probably also synonyms, altho more and better material is needed to decide this point. Dr. Hagen then discussed larval characters in some species of *Papilio*, especially in *P. machaon*.

Mr. G: Dimmock believed that larvae of *Attacus polyphemus* could pupate, if driven by hunger, before the last larval stage, and mentioned that he had a number of dwarf co-

coons produced by keeping the larvae hungry. Larvae of *Thyreus abbotii*, of which both dimorphic larval forms are common in Cambridge, possibly sometimes drop one larval stage.

Mr. G : Dimmock was elected secretary and Mr. B : P. Mann treasurer, in place of Mr. W : Trelase, whose resignation of the office of secretary-treasurer was announced.

10 Nov. 1882.—87th meeting . . .

Dr. H. A. Hagen called attention to the subject of acceleration of development in the larvae of lepidoptera, and especially to its occurrence where many larvae are crowded together. After referring to some cases mentioned in his paper "On some insect deformities" (Memoirs Mus. comp. zool., May 1876, v. 2, no 9). Dr Hagen said that *Pieris menapia* sometimes so hastens the process of pupation, when crowded, that the pupa lacks the usual encircling thread and is only suspended by the tip of the abdomen, and, in one case the process was so hurried that only the anterior part of the chrysalis was formed.

Mr G : Dimmock exhibited dwarf cocoons of *Attacus polyphemus*. the dwarfing of which was produced by starving the larvae. The average weight of the ten dwarf cocoons exhibited was 1.2 grams, while the average weight of nine cocoons from larvae reared in similar circumstances, but not starved, was 3.8 grams. It is possible to make the larva of *A. polyphemus* spin a cocoon when it is only between 2.5 and 3 cm. long, by gradually diminishing its food-supply; this formation of dwarfs by starvation is not possible, to the same marked extent, with larvae of *A. cecropia*, *A. promethea* or *A. luna*. The lightest weight of any cocoon of *A. polyphemus* possessed by Mr. Dimmock was 0.2 gram, but this cocoon was occupied by a dead larva. Next in weight was one which weighed 0.3 gram, and which contained a cocoon of an ichneumon. Parasitism usually reduces the weight of cocoons. The most promising dwarf cocoon was one weighing 1.8 grams, which was very sensi-

tive to disturbance, the pupa within it writhing about on slight touch. The pupa of *A. luna* are usually much more sensitive than those of *A. polyphemus*; their weight is generally less, however; the average weight of seven well-developed cocoons of *A. luna* was only 2 grams. The weights of all the above-mentioned cocoons are probably slightly less than they would be if the larvae had been reared in the open air.

Dr. H. A. Hagen showed a very large specimen of the *hippoboscidae*, probably a new species, which had been found on a swallow. Its length was one centimetre; it had no ocelli; its wings were rudimentary, not broken off, as is usually the case with the females of *hippoboscidae*, and the rounded rudiments of wings had veins and a marginal fringe. Dr. Hagen alluded further to the number of species of the family and to the wide distribution of each species.

Dr. H. A. Hagen exhibited egg-shells of a hemipterous insect, which were found on a grape-vine in California. At first sight the eggs would be mistaken for those of some species of *bombycidae*, being white banded with brown, and barrel-formed. The first larval skin remained within the eggs together with a little three-pointed egg-burster. Dr. Hagen then described the modes by which some larvae with sucking mouth-parts escape from the egg, drawing especial attention to the cephalic saw by which the larva of *Chrysopa* and of other *hemerobidae* extricate themselves from their eggs.

Mr. R. Thaxter showed a larva of *Papilio cresphontes* taken by Mr. N. Coleman, in Berlin, Conn., 13 Oct. 1882. This species has been found a few years past about Berlin, Conn.

Mr. G : Dimmock mentioned that out of about a dozen pupae of *Thyreus abbotii* which he attempted to carry to Germany, in 1879, not a single specimen survived the voyage. Dr. Hagen remarked on the modes of packing best suited for carrying pupae on oceanic voyages.

Mr. G. Dimmock stated that, in seven hours, collecting near Mt. Wachusett (in Princeton, Mass.), 26 Aug. 1882, he had taken 96 larvae of lepidoptera belonging to 44 species; among these were 18 larvae (9 species) of *geometridae*. In one hour's collecting, near Waverly, Mass., 30 Aug. 1882, he had taken 19 specimens (9 species) of lepidopterous larvae. In both cases many specimens had been rejected as undesirable.

Dr. H. A. Hagen called attention to Prof. J. D. Whitney's new work, entitled "The climatic changes of later geological times" . . . Cambridge (Memoirs Mus. comp. zool., v. 7, no. 2, part. 3) 1882, as showing how, after much had been written concerning the influence of the great glacial sheet, that was supposed to have once covered North America, upon the distribution of insects, that, in the opinion of Prof. Whitney, the glacial sheet itself had never existed to the extent that had been supposed.

18 DEC. 1882.—88th meeting. Mr. W: H. Ashmead, of Jacksonville, Fla.; Prof. R: E. Call, of David City, Neb.; Mr. S: E. Cassino, of Boston, Mass.; and Mr. C: Fish, of Brunswick, Me. were elected active members.

Dr. H. A. Hagen said that he had long thought that the thorax of insects is divided into more parts than had been generally supposed, that is, that each of its three segments was divisible into three smaller parts. Entomologists would object to this view of the structure of the thorax on account of development. In Balfour's Comparative embryology we find that author regards ancestral forms as better indicated in the larvae, especially if the larval life is long, than in the egg. This removes objections. Dr. Hagen had corresponded with Dr. Fritz Müller, who would now, perhaps, extend this subdivision of the segments to those of the abdomen. In answer to a question if the ganglionic arrangement of the nervous system was not an objection to these views,

Dr. Hagen said that, on the contrary, there were really three pair of ganglia in each segment.

Mr. G: Dimmock exhibited dwarfs of *Colias philodice* (extreme possible expanse of wing, 37 mm.), *Papilio polyxenes* (same measurement, 65 mm.), and *Pyrameis huntera* (same measurement, 50 mm.). The dwarf of *Papilio polyxenes* was produced by keeping the larva and pupa in a dry room. It emerged from pupa 27 March 1871. The *Colias philodice* was said by Dr. Hagen to be the form described by Fitch as *C. sautas*; it was taken in Springfield, Mass.

Mr. Wyllis A. Silliman remarked that a species of white ant (*Callotermes flavicollis*?) collected at Banyuls-sur-mer, Pyrénées-Orientales, France, is infested with the same organisms that Prof. Joseph Leidy has recently described (Proc. Acad. nat. sci., Philad., 1880, ser. 2, v. 8, p. 425-447, pl. 51-52) from the intestine of *Termes flavipes* of this country. Altho in doubt as to the position of these forms in the scale of life, Mr. Silliman thought that several of them are only stages of one species, and that the so-called "*Vibrio termitis*" of Leidy is the spermatozoon of *Pyrrsonympha agilis*. In fact, the "pharyngeal sac" (Leidy) of the latter species is always filled with "Vibrios," which are seen to escape, under pressure, from an anterior orifice. *P. agilis* has no stomach, but the protoplasm of the posterior part of the body carries on an intracellular digestion.

Mr. G. Dimmock briefly described the general appearance of a very large species of gregarina which he had found abundantly in the intestine of *Scolopendra morsitans*, during March, April, and May, 1882, about Banyuls-sur-mer, Pyrénées-Orientales, in France. The full-grown parasites were from six to eight millimetres in length, and had a peculiarly formed cross-piece at the larger end; the smaller end tapered gradually to a point as it does in many species of gregarina.